



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,012	01/16/2004	Tomoyuki Kojima	0051-0217P	5749
2292 7590 11/16/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER MCCALISTER, WILLIAM M				
ART UNIT		PAPER NUMBER		
3753				
NOTIFICATION DATE		DELIVERY MODE		
11/16/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

### Office Action Summary

**Application No.**

10/758,012

**Applicant(s)**

KOJIMA ET AL.

**Examiner**

WILLIAM MCCALISTER

**Art Unit**

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 September 2009.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 7 and 9-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1, 7 and 9-13 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Claims 2-6 and 8 have been cancelled. Claims 1, 7 and 9-13 are pending for consideration.

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 7 and 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The independent claims have been amended to make clear that the maximum negative pressure is a lower absolute pressure than the minimum negative pressure. However, they also require (see claim 1 at lines 28-30, claim 7 at lines 32-34, and claim 9) that actions occur "when the vacuum level rises above a maximum negative pressure ... and when the vacuum level falls below a minimum negative pressure".

- a. What does it mean for a "vacuum level [to] rise[ ] above a maximum negative pressure"? Does this mean that the absolute pressure of the vacuum becomes greater, or less than the maximum negative pressure? It is suggested that this phrase be couched in terms of absolute pressure to avoid the ambiguity.

b. What does it mean for a "vacuum level [to] fall[ ] below a minimum pressure"? Does this mean that the absolute pressure of the vacuum becomes greater, or less than the minimum negative pressure? It is suggested that this phrase be couched in terms of absolute pressure to avoid the ambiguity.

***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 7 and 9-13 as understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Garcia (US 5,842,579) in view of Mori (US 5,191,218).

Regarding claim 1, Garcia discloses a vacuum suction system comprising:

a vacuum leak generation part (device of FIG 6),

a vacuum generation mechanism (the "low pressure source", see col. 4 line 13)  
connected to the vacuum leak generation part,

wherein the vacuum leak generation part (see FIG 6) includes:

a table base (9) disposed on a side of the vacuum generation mechanism,

a vacuum suction channel (11),

a conveyor table (8) rotatably mounted on the table base (member 8  
rotates while member 9 is stationary; see col. 3 lines 45-46 and col. 4 line 2), and

a plurality of work receiving openings (10) for receiving works (such as members 12),

each work receiving opening (10) being disposed (radially) outwardly relative to the vacuum suction channel (11),

each work receiving opening (10) being connected to the vacuum suction channel (11) through a minute sectional suction channel (13) provided on the conveyor table (8),

each of the minute sectional suction channels (13) has an axis extending in a direction (from left to right, as seen in FIG 5) that is orthogonal to an axis (from top to bottom, as seen in FIG 6) of the corresponding work receiving opening (10), and having a cross-sectional area that is smaller than that of the vacuum suction channel (as seen in Figures 5 and 6).

Garcia does not disclose the vacuum level adjustment mechanism as claimed. Mori teaches that it was known in the art at the time of invention to employ a vacuum level adjustment mechanism (113a, 114a, 115a-b, 116a, 117, 120; see FIG 6) connected to a similar vacuum leak generation part (106, 111). Mori teaches the vacuum level adjustment mechanism to comprise:

a negative pressure sensor (113a) to detect a vacuum level of similar work receiving openings (106<sub>2</sub>) of a similar work table (106),

an adjustment part (115a, 115b) which adjusts the vacuum level of the vacuum leak generation part based on a signal from the negative pressure sensor (col. 9 lines 38-42), and

a compressed gas generation source (116a) for generating compressed gas,

wherein the adjustment part is adapted to jet out the compressed gas from the compressed gas generation source to the vacuum leak generation part based on the signal from the negative pressure sensor (by operation of control valve 115b, see col. 9 lines 30-32 and 38-42), and

wherein the adjustment part (115b) jets out compressed gas based on the signal from the negative pressure sensor when the vacuum level rises above a maximum negative pressure, and stops the compressed gas when the vacuum level falls below a minimum negative pressure, wherein the maximum negative pressure is a lower absolute pressure than the minimum negative pressure (since pressure in passageway 111 is maintained constant by control of valve 115b based on the pressure sensor reading, see col. 10 lines 23-32).

To more accurately control the pressure in Garcia's vacuum suction system using closed-loop feedback, it would have been obvious to one of ordinary skill in the art at the time of invention to supplement Garcia's vacuum suction system with a vacuum level adjustment mechanism, as taught by Mori.

Mori does not disclose the compressed gas to be air. However, expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim (see MPEP 2115). It also would have been obvious to decrease the cost of operating the Garcia-Mori system by using air as the compressed gas rather than helium, since Garcia teaches that air is suitable for use in his system (throughout the specification).

Also note that the combined system would have resulted in the maximum negative pressure being determined by an increased work load rate and the minimum negative pressure being determined by a decreased work load rate (the addition and removal of work pieces inherently raises and lowers the vacuum level present in the system, since this effects the number of openings which are exposed to atmospheric pressure).

The method of claims 7 and 9 would necessarily be performed during the normal and usual operation of Garcia's vacuum suction system as supplemented with Mori's vacuum adjustment mechanism (the obviousness analysis regarding the use of air is incorporated by reference). (Regarding claim 9, the release of compressed air inherently occurs intermittently, for otherwise there would be no need for Mori's valve 115b.)

Regarding claims 10 and 12, the combinatorial apparatus would maintain the vacuum level of the work openings regardless of the work load rate. This is what Mori's feedback vacuum pressure control adjustment mechanism is designed to do (see col. 10 lines 28-32).

Regarding claims 11 and 13, all conduits provide pressure resistance because of frictional losses associated with the contact between flowing fluid and the conduit walls.

### ***Response to Arguments***

5. Applicant's arguments filed 9/14/2009 have been fully considered but they are not persuasive.

a. In response to applicant's arguments against the references individually (Remarks, pp. 15-16), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

c. Applicant argues that Mori fails to disclose that the work load rate determines the vacuum level (Remarks, pp. 15-16). In response, this characteristic is seen as inherent to Garcia, since the presence of work pieces in the work receiving openings would hinder the inflow of gas through the work receiving openings (and therefore facilitate the creation of vacuum), and the absence of work pieces obstructing the work receiving openings would facilitate



the inflow of gas through the work receiving openings. Moreover, since Mori's system maintains a vacuum pressure using the controlled connection of compressed air and vacuum, the vacuum level of Garcia's work receiving openings would be stabilized by the operation of Mori's feedback vacuum control system.

d. Applicant argues that Mori is non-analogous art (Remarks, p. 16). In response, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Garcia, Mori and Applicant all deal in the art of pressure regulation and vacuum chucks.

e. Applicant's arguments not addressed herein have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM MCCALISTER whose telephone number is (571)270-1869. The examiner can normally be reached on Monday through Friday, 9-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WILLIAM MCCALISTER/  
Examiner, Art Unit 3753

/STEPHEN HEPPELLE/  
Primary Examiner, Art Unit 3753

11/3/2009